

What is claimed is:

1. A process of forming a bis(azinyl)amine-BF₂ complex, where a boron atom is complexed by two ring nitrogens of a deprotonated bis(azinyl)amine compound, comprising the step of reacting BF₃ with a protonated bis(azinyl) amine in the presence of a polar aprotic organic solvent that is not reactive with the BF₃ under reaction conditions.

2. The process of claim 1 wherein the polar aprotic organic solvent contains a nitrile group.

3. The process of claim 2 wherein the solvent is represented by formula 3:



wherein

R₁, R₂ and R₃ each independently represents hydrogen, fluorine, alkyl, aryl, alkoxy, aryloxy, dialkylamino, diarylamino, cyano, or nitro groups; and

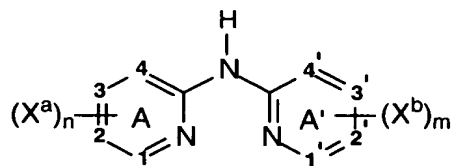
R₁ and R₂, R₂ and R₃ or R₁ and R₃ may join to form a cycloalkyl or an aryl ring group.

4. The process of claim 3 wherein at least one of R₁, R₂ and R₃ is not H.

5. The process of claim 3 wherein at least two of R₁, R₂ and R₃ are not H.

6. The process of claim 3 wherein R₁ and R₂ represent H and R₃ represents a methyl group.

7. The process of claim 3 wherein R_1 and R_2 represent H and R_3 represents an ethyl group.
8. The process of claim 3 wherein at least two of R_1 , R_2 and R_3 are H.
9. The process of claim 1 wherein the BF_3 source comprises BF_3 gas, BF_3 solution in an organic solvent or BF_3 complex with organic solvent or compound.
10. The process of claim 1 wherein the BF_3 source comprises BF_3 complexed with diethyl ether, dimethyl ether or tetrahydrofuran.
11. The process of claim 1 wherein BF_3 is used in the amount 1-50 equivalents per mol of protonated bis(azinyl)amine compound.
12. The process of claim 1 wherein the reaction is performed at a temperature of at least 18 °C.
13. The process of claim 1 wherein the reaction is performed at a temperature of at least 80 °C.
14. The process of claim 1 wherein the reaction is performed at a temperature of at least 115 °C.
15. The process of claim 1 wherein protonated bis(azinyl)amine compound is represented by Formula (1):



(1)

wherein:

A and A' represent independent azine ring systems corresponding to 6-membered aromatic ring systems containing at least one nitrogen;

each X^a and X^b is an independently selected substituent, two of which may join to form a fused ring to A or A';

m and n are independently 0 to 4; and

atoms 1, 2, 3, 4, 1', 2', 3', and 4' are independently selected as either carbon or nitrogen atoms.

16. The process of claim 15 where at least one X^a or X^b is present containing 4 or more carbon atoms.

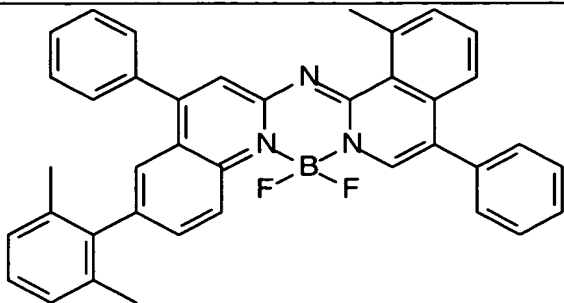
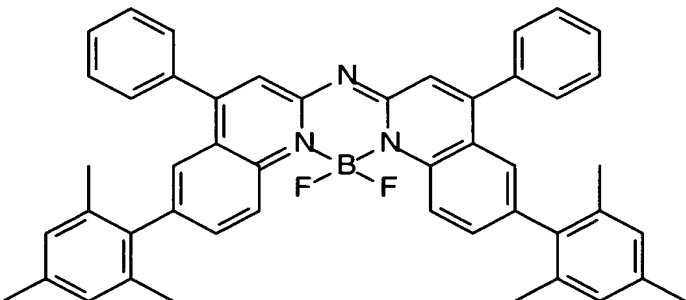
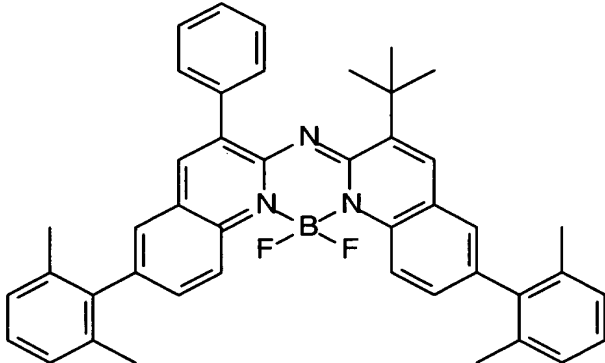
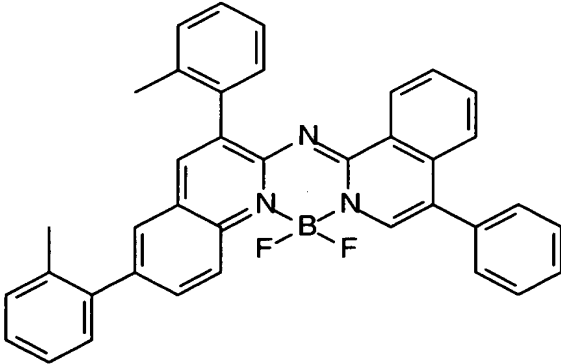
17. The process of claim 16 wherein the X^a or X^b group is selected from the group consisting of phenyl and t-butyl groups.

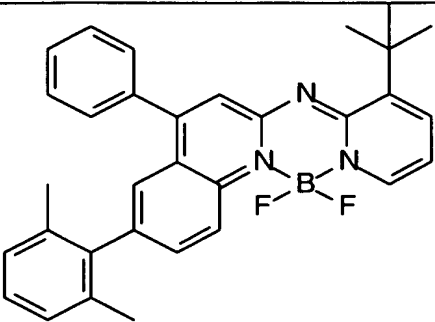
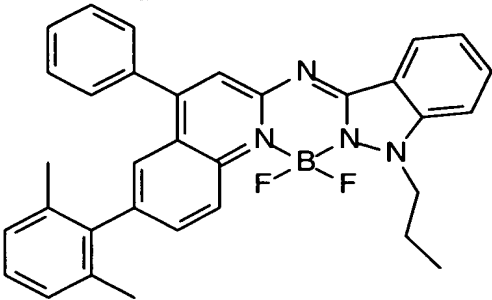
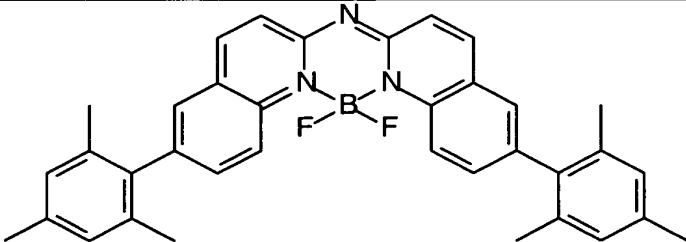
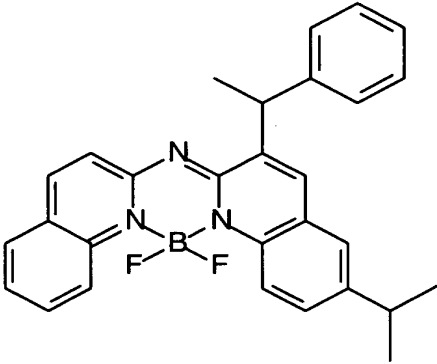
18. The process of claim 17 wherein the X^a or X^b group is a phenyl group.

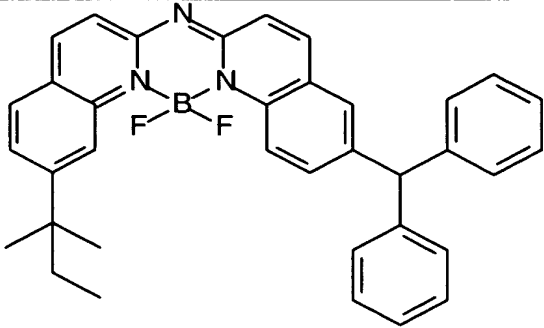
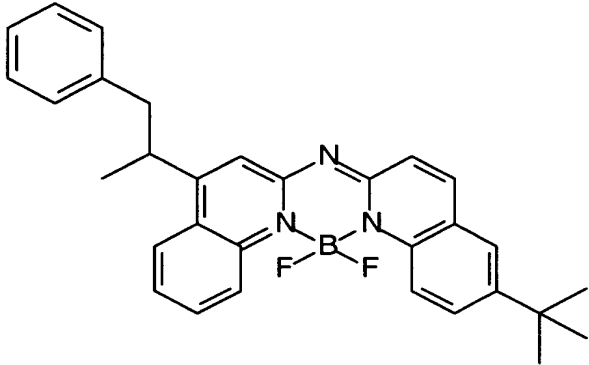
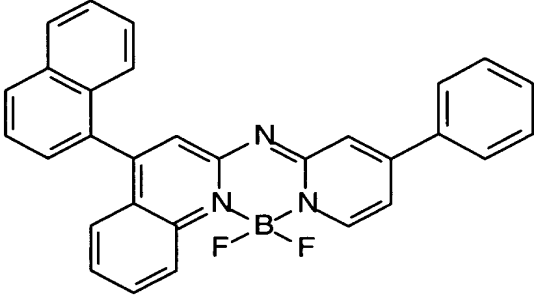
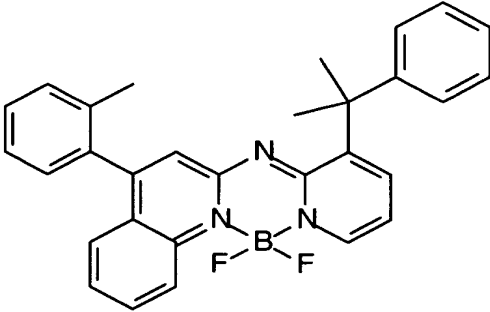
19. The process of claim 17 wherein the X^a or X^b group is a phenyl group containing at least one methyl group substituent.

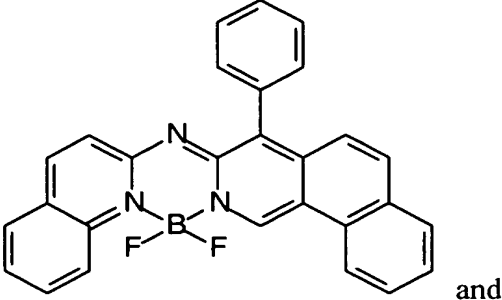
20. The process of claim 17 wherein the X^a or X^b group is a mesityl group.

21. The process of claim 1 wherein the a bis(azinyl)amine-BF₂ complex is selected from the following:

Inv-1	
Inv-2	
Inv-3	
Inv-4	

Inv-5	
Inv-6	
Inv-7	
Inv-8	

Inv-9	
Inv-10	
Inv-11	
Inv-12	

<p>Inv-13</p>	 <p>and</p>
<p>Inv-14</p>	